NPClime – Climate Data for Parks

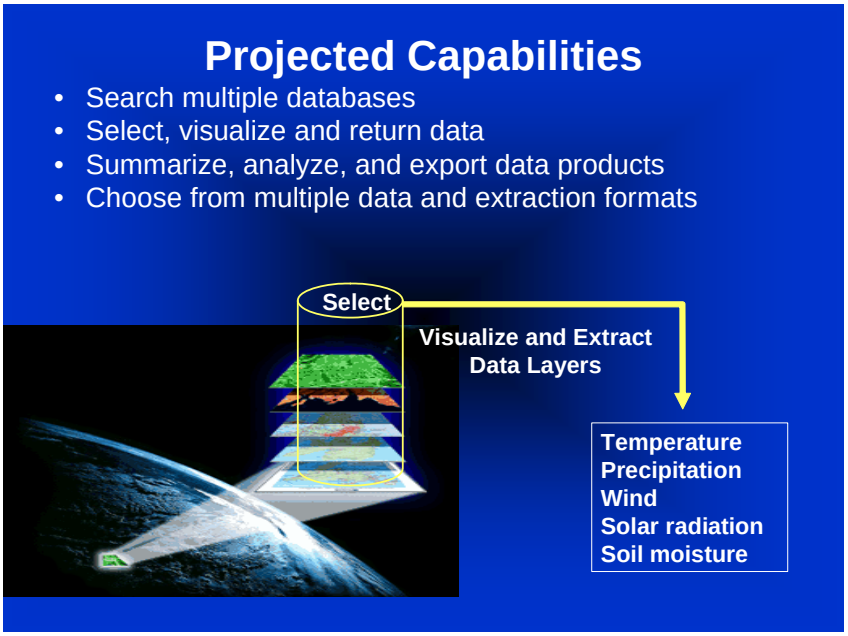
Project Overview

Climate data are critical for interpreting ecological changes and managing National Parks because most ecological processes and many species respond strongly to weather variability. In addition, climate data are fundamental to understanding past changes and for predicting future changes in park ecosystems. Weather profoundly influences everyday park operations such as fire management, search and rescue, monitoring of air resources, and maintenance of park infrastructure.

The long-term goal of NPClime is to provide NPS staff with tools to discover and use climate data to satisfy both routine needs and for sophisticated analyses. To achieve this goal, NPClime is being implemented in the following phases:

Phase 1, consisting of an inventory of climate stations, will be completed in mid-2007. Products from Phase 1 include inventory reports and databases with locations and extensive metadata for weather stations in and near parks. This first step is essential to determine what data potentially exist, and where the data are housed.

Phase 2, which began in early 2007, is working with climate data. Key goals are to establish electronic access between NPS servers and weather databases, to conduct a comprehensive user needs assessment, to design and implement an interface consistent the NPS data system, and to design and implement data analyses tools and derived products that address NPS needs. During Phase 2, we will conduct an evaluation of options for future management of NPS-relevant climate data (e.g., data ingestion, QA/QC, data archiving, standardized analyses and graphic products, and web access). Many data manipulations will use the R language, and the analyses and code developed to work on climate data will be readily transferable to other data sources, thereby contributing to overall I&M data analysis reporting capabilities.



The vision for NPClime is to provide web-based climate data discovery tools, access to the underlying data, and derived data products for the NPS. Derived data products include graphical and tabular displays and summaries of climate data.

Phase 3 will emphasize longer term data management requirements. We expect that phase 3 will include processes to meet NPS-wide needs to ensure data quality, to implement a process for data archiving, and a long-term strategy for maintenance and updating of climate software. Final decisions on Phase 3 will follow the evaluation of NPClime Phase 2 products.

Project Integration

NPClime is being produced in collaboration with the Western Region Climate Center, and it relies and builds on the capabilities of the Applied Climate Information System (ACIS). ACIS is a cooperative system supported by all the NOAA regional climate centers. NPS enhancements will provide geographic queries and processes not currently available, and focus on NPS-specific needs. In the future, we hope these enhancements will be incorporated into core ACIS functionality.

NPClime Team

The core project team is large, including NPS I&M and GIS staff, an Advisory Committee, university partners, and Western Regional Climate Center staff based in Reno, Nevada. Key NPS contacts are John Gross, Margaret Beer, Greg Hill, and Chris Peltz.

Near-Term Activities

As of April 2007, current project activities are focused on improving and embellishing the prototype user interface, identifying and developing core analyses, fully documenting NPClime technical and functional requirements, and developing the evaluation report.

Links

Climate inventory:
http://science.nature.nps.gov/im/inventory/climate/index.cfm

NPClime Forum:
http://www1.nrintra.nps.gov/im/datamgmt/userboards/boardpages/NPClime.cfm